Mare Island, Vallejo, California

6 December 1948

To: Medical Officer in Command

Subj: Monthly Report of the Experimental Work of the Artificial Limb Department.

Ref: (a) Advisory Committee on Artificial Limbs ltr dtd 21 June 1948.

1. Monthly report required by reference (a) is hereby submitted.

2. The following projects are under production, experimentation and further study:

(a) Lower Extremities Section

I. Foot and Ankle

A functional ankle joint utilizing the single cable is being fitted to amputees routinely. The University of California has completed the accelerated testing of this device and the ankle mechanism has completed over 2,800,000 cycles. For results of these tests of the University of California see report of October 1948.

II. Shank

Three plastic test shanks have been built using a knee brake and back stop mechanism for a bending load test and results will be used in redesign (all shins were reinforced in the superior posterior part of the shin with nylon fabrics).

III. Knee

A. Mechanical

All experimental work on the functional above knee joint which provides rotation in the knee has been discontinued.

IV. Cosmetic Problem

Work is continuing on the clay models of norms using the University of California figures. One additional below knee limb has been completed for a female patient with a Latex foam for a covering with liquid Latex sprayed on as a finish. This leg has been fitted with a suction socket and has proven very successful both from a functional and aesthetic standpoint.

V. Brief summary of status of models as a unit.

Experimental work is continuing on the below knee suction socket and a new plastic liner has been procured from the Boltaflex Corporation which is hoped will replace the horsehide liner which is now in use.

(b) Upper Extremities

I. Arms

Two additional Robin-Aid flexion units are being utilized by below elbow arm amputees to a definite advantage. One of these men is a machinist who finds in his trade many uses for this device. The other is doing clerical work and also finds this device helpful in his occupation.

It has been found that the functional elbow joint in its present design allows the amputee greater freedom of the elbow joint and more supination and pronation. The supination and pronation is increased with use.

II. Hands, Hooks and Tools.

The Robinson artificial hand has been redesigned to allow a wider opening of the hand in order to meet the figures set up by the University of California at Los Angeles, and also the pull necessary to close the hand has been reduced from 1¼" to 7/8" allowing greater power in fingertip force. It is contemplated that the use of the APRL friction type lock can be used in the Robinson hand.

III. Cosmetic Problem

No further work has been done on the cosmetic problem of the arm.

IV. Harness and/or other outside control.

A single strap harness for the Navy-Fitch above elbow arm is proving very satisfactory and is being used routinely.

The nylon harness is being used on all cases. However, samples of Vinyon tape have been received from Northrup and will be compared with the nylon at an early date.

V. Brief Summary of status of models as a unit.

Below and above elbow suction sockets are being fitted to amputees and are continuing to prove successful in the majority of cases.

The Robin-Aid above elbow arm has been sent back to the design section for a redesign of the mechanism in the elbow.

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